

CLAIMS

I claim:

1. A network bus topology for a master/slave communication network comprising:
 - a transmission cable including a transmit twisted-wire pair, a receive twisted-wire pair, and a sense cable;
 - a master module including a master transmit terminating resistor and a master receive terminating resistor, both master terminating resistors being operably connected to the transmission cable;
 - a slave module including a slave receive terminating resistor and a slave receive switch, the slave receive terminating resistor being operably connected to the slave receive switch wherein the master transmit terminating resistor and the slave receive terminating resistor being operably connected to the transmit twisted-wire; and,
 - a load resistor being operably connected to the sense cable, the slave receive switch being operably responsive to the load resistor to generate a receive terminate enable wherein the slave receive switch inserts the slave receive terminating resistor onto the transmit twisted-wire pair of the transmission cable in response to the receive terminate enable.
2. The network bus topology of Claim 1 wherein the slave module further comprises:
 - a slave transmit terminating resistor; and,
 - a slave transmit switch, the slave transmit terminating resistor being operably connected to the slave transmit switch, the master receive terminating resistor and the receive twisted-wire pair,
 - the slave transmit switch being operably responsive to the load resistor to generate a transmit terminate enable wherein the slave transmit switch inserts the slave transmit terminating resistor onto the receive twisted-wire pair of the transmission cable in response to the transmit terminate enable.

3. The network bus topology of Claim 1 wherein the transmission cable is Ethernet 10BASE-T.
4. The network bus topology of Claim 1 wherein the transmission cable is Ethernet 100BASE-T.
5. The network bus topology of Claim 1 wherein the slave transmit switch and the slave receive switch are electronic.
6. The network bus topology of Claim 1 wherein the slave receive terminating resistor has a value equal to the value of the characteristic impedance of the network.
7. The network bus topology of Claim 2 wherein the slave transmit terminating resistor has a value equal to the value of the characteristic impedance of the network.
8. A network bus topology for an Ethernet master/slave communication network comprising:
 - a communication cable comprising:
 - a transmit twisted-wire pair;
 - a receive twisted-wire pair; and,
 - a sense cable including at least three wires, the sense cable further including a load resistor being operably connected to the sense cable;
 - a master module including a master transmit terminating and a master receive terminating receive, the master transmit terminating resistor being operably connected to the transmit twisted-wire pair and the master receive terminating resistor being operably connected to the receive twisted-wire pair; and,
 - a slave module including a slave receive terminating resistor, a slave transmit terminating resistor, a receive switch, and a transmit switch,

the receive switch being operably connected to the slave receive terminating resistor and the transmit twisted-wire pair,

the transmit switch being operably connected to the slave transmit terminating resistor and the receive twisted-wire pair,

wherein the receive and transmit switches being responsive to the load resistor to generate a receive terminate enable and a transmit terminate enable, respectively, the receive switch inserts the slave receive terminating resistor onto the transmit twisted-wire pair in response to the receive terminate enable, and

the transmit switch inserts the slave transmit terminating resistor onto the receive twisted-wire pair in response to the transmit terminate enable.

9. The network of Claim 8 wherein the master/slave communication network is 10BASE-T.

10. The network of Claim 8 wherein the master/slave communication network is 100BASE-T.

11. The network of Claim 9 wherein the receive terminating resistor of the slave module has a value of approximately 100 ohms.

12. The network of Claim 10 wherein the receive terminating resistor of the slave module has a value of approximately 100 ohms.

13. A method of minimizing communication signal disruptions in a master/slave communication network comprising a master module, a slave module, and a transmission cable, the transmission cable being operably connected to the master and slave modules, the method comprising the steps of:

providing a slave receive terminating resistor, the slave receive terminating resistor being operably connected to a slave receive switch and a transmit twisted-wire pair;
sensing a voltage signal on the transmission cable;
generating a terminate enable responsive to the voltage signal; and,
activating the switch in response to the terminate enable wherein the slave receive terminating resistor is placed onto the transmission cable.

14. The method of Claim 13 wherein the transmission cable is Ethernet 10Base-T.
15. The method of Claim 13 wherein the transmission cable is Ethernet 100Base-T.
16. The method of Claim 13, further comprising:
selecting a value for the slave receive terminating resistor equivalent to properly match the characteristic impedance of the network.
17. The method of Claim 16 wherein the selected value is approximately 100 ohms.